

REMARKS

Rejections under 35 USC §102(b)

Claims 1, 2 and 6-8 are rejected under 35 USC §102(b) as being anticipated by Nishiguchi (U.S. Patent No. 5,461,261).

In the advisory action, the Examiner alleged as follows:

Applicant's remarks, p.3, when Nishiguchi refers to the mounting method, it is as a general over view of the entire process. The alloy reaction and melting take place before any mounting take place. Nishiguchi performs the steps in order. The Broadest interpretation of Applicants language does not preclude intervening metal alyers or steps because of the "comprising" language used. The steps are still performed in order in Nishiguchi, however other steps may intervene.

Claim 1 recites as follows:

A method of manufacturing a semiconductor device comprising, **in the recited order**, the steps of:

[(a)] **forming an insulating film** on a surface of a semiconductor element or a circuit wiring board having electrodes on the surface thereof;

[(b)] forming openings in the insulating film by patterning the insulating film and then removing portions of the insulating film above the electrodes;

[(c)] supplying a first metal into the openings;

[(d)] **heating the first metal to melt and coagulate the first metal;**

[(f)] supplying a second metal into the openings on the first metal;

[(g)] **heating the first metal and the second metal to melt and coagulate the first metal and the second metal;** and

[(h)] **removing the insulating film.**

(Alphabetic order added.) Thus, claim 1 recites a method with specific steps in the recited order.

According to the present invention, heating step (d) is inserted between steps (c) and (f).

According to Nishiguchi, as shown in Figs. 13 and 14, Au layers and Sn layers are alternately formed by electroplating in the bump formation window of the photo resist 106 and finally the photoresist 106 is removed.

However, in Nishiguchi, there is no heating step between the steps where the Au layer and Sn layers are formed. Thus, Nishiguchi's process clearly lacks step (d), which is required by claim 1.

Despite the Examiner's allegation, Nishiguchi DOES NOT perform the recited steps in the recited order. Even if the broadest interpretation of claim 1 using "comprising" may not preclude **intervening** metal layers or steps, the broadest interpretation of the term "comprising" in claim 1 cannot cover a process where any recited step is **missing**.

According to claim 1, heating step (d) must come between steps (c) and (f). Nishiguchi does not teach or suggest step (d).

For at least these reasons, claim 1 patentably distinguishes over Nishiguchi. Claims 2 and 6-9, depending directly from claim 1, also patentably distinguish over Nishiguchi for at least the same reasons.

Rejections under 35 USC §103(a)

Claims 3-5 are rejected under 35 USC §103(a) as being obvious over Nishiguchi (U.S. Patent No. 5,461,261) in view of Nakata et al. (U.S. Patent Publication No. 2004/0079194).

Nakata et al. has been cited for allegedly disclosing use of Bi in a Sn composition since Bi forms a low melting point alloy phase with Sn. Such disclosure, however, does not remedy the deficiencies of Nishiguchi discussed above.

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For at least these reasons, claims 3-5, depending directly or indirectly from claim 1, also patentably distinguish over Nishiguchi.

In view of the aforementioned remarks, Applicants submit that the claims are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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